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*********************************************************************
*****        G A M M A   S P E C T R U M   A N A L Y S I S        *****
*********************************************************************


Filename: ERT01,C:\GENIE2K\CAMFILES\SMP-NFB-WAREHOUSE-BAG NO.17.CNF

Report Generated On              : 7/21/2017   1:34:33 PM

Sample Title                     : NFB-WAREHOUSE-BAG NO.17
Sample Description               : 450 cc Soil
Sample Identification            :
Sample Type                      :
Sample Geometry                  :

Peak Locate Threshold            :  3.00
Peak Locate Range (in channels)  :   100 -  8192
Peak Area Range (in channels)    :   100 -  8192
Identification Energy Tolerance  :    1.000 keV

Sample Size                      :  8.437E+002 GWET

Sample Taken On                  : 12/7/2016  12:00:00 PM
Acquisition Started              : 7/21/2017  11:34:29 AM

Live Time                        :     7200.0 seconds
Real Time                        :     7202.7 seconds

Dead Time                        :   0.04 %


          Energy Calibration Used Done On       : 5/10/2017
          Efficiency Calibration Used Done On   : 12/14/2016
          Efficiency ID                         : ERT0101
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****
***** P E A K A N A L Y S I S R E P O R T *****
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Detector Name: ERT01
Sample Title: NFB-WAREHOUSE-BAG NO.17
Peak Analysis Performed on: 7/21/2017 1:34:34 PM
Peak Analysis From Channel: 100
Peak Analysis To Channel: 8192

	Peak No.	ROI start	ROI end	Peak centroid	Energy (keV)	FWHM (keV)	Net Peak Area	Net Area Uncert.	Continuum Counts
M	1	293-	315	300.31	74.94	0.94	2.22E+002	23.53	5.03E+002
m	2	293-	315	309.05	77.12	0.95	3.67E+002	27.58	4.87E+002
M	3	342-	365	349.27	87.18	0.86	1.14E+002	21.50	4.73E+002
m	4	342-	365	359.42	89.71	0.87	8.28E+001	19.81	4.73E+002
	5	736-	751	743.97	185.82	0.90	1.90E+002	38.76	4.37E+002
	6	831-	845	837.58	209.21	1.09	9.82E+001	34.00	3.62E+002
M	7	945-	978	955.20	238.61	1.15	1.32E+003	39.90	2.87E+002
m	8	945-	978	967.58	241.70	1.15	2.55E+002	19.85	2.32E+002
	9	1175-	1189	1181.37	295.13	1.01	3.17E+002	30.27	2.08E+002
	10	1190-	1206	1200.90	300.02	0.83	8.48E+001	27.14	2.08E+002
	11	1306-	1318	1312.78	327.98	0.79	7.77E+001	20.91	1.36E+002
	12	1346-	1367	1353.73	338.21	0.83	2.33E+002	35.52	2.71E+002
	13	1398-	1416	1408.09	351.79	1.28	6.04E+002	36.25	2.10E+002
	14	1847-	1864	1852.49	462.86	1.45	9.87E+001	20.64	1.00E+002
	15	2033-	2053	2043.76	510.66	1.64	2.70E+002	30.48	1.81E+002
	16	2324-	2341	2333.25	583.01	1.26	4.22E+002	29.22	1.33E+002
	17	2430-	2446	2437.84	609.15	1.63	4.95E+002	28.02	9.28E+001
	18	2575-	2585	2579.59	644.58	0.63	1.35E+001	9.34	3.05E+001
	19	2640-	2652	2646.46	661.29	0.79	5.02E+001	14.58	6.18E+001
	20	2902-	2918	2909.27	726.97	0.50	7.71E+001	17.73	7.59E+001
	21	3174-	3188	3180.58	794.78	1.16	6.46E+001	14.29	4.84E+001
	22	3437-	3449	3442.69	860.28	0.56	4.67E+001	12.30	3.93E+001
M	23	3479-	3502	3484.18	870.65	0.40	1.07E+001	5.03	1.64E+001
m	24	3479-	3502	3497.53	873.99	0.41	9.06E+000	3.97	9.88E+000
	25	3635-	3657	3645.67	911.01	1.20	3.65E+002	24.36	5.94E+001
M	26	3850-	3886	3859.71	964.50	1.55	6.26E+001	9.96	5.33E+001
m	27	3850-	3886	3877.42	968.93	1.55	2.26E+002	16.41	4.59E+001
	28	4475-	4494	4483.08	1120.29	1.13	1.23E+002	17.72	5.43E+001
	29	5102-	5113	5107.93	1276.46	0.62	8.63E+000	8.52	2.54E+001
	30	5510-	5523	5516.23	1378.50	1.07	3.54E+001	7.68	8.60E+000
	31	5835-	5858	5847.23	1461.22	1.69	1.20E+003	35.94	2.40E+001
	32	6351-	6365	6357.04	1588.63	0.50	3.80E+001	6.64	2.01E+000
	33	7056-	7074	7064.85	1765.53	0.68	1.02E+002	12.16	1.36E+001

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma

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***** N U C L I D E M D A R E P O R T *****
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Detector Name: ERT01
Sample Geometry:
Sample Title: NFB-WAREHOUSE-BAG NO.17
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	K-40	1460.82*	10.55	3.9638E-001	3.96E-001	8.7367E+000
	Co-60	1173.23	99.85	6.0525E-002	5.26E-002	-4.4935E-003
		1332.49	99.98	5.2624E-002		2.2334E-002
>		2505.71	0.10	0.0000E+000		0.0000E+000
+	Cs-137	32.06	5.54	2.9419E+003	3.18E-002	6.0745E+002
		661.66*	84.99	3.1839E-002		2.5811E-002
+	Tl-208	72.80	2.02	6.2445E+000	5.94E-002	-1.2056E+000
		74.97*	3.41	2.1788E+000		3.2167E+000
		84.90	1.51	5.3375E+000		1.9647E+000
		277.36	6.31	8.1558E-001		3.2634E-001
		510.77*	22.60	2.8508E-001		2.0364E-001
		583.19*	84.50	5.9351E-002		2.4469E-001
		763.13	1.81	3.5034E+000		4.2348E-001
		860.56*	12.42	2.6305E-001		2.4404E-001
+	Bi-212	39.86	1.06	6.6801E+002	6.33E-001	2.1239E+002
		727.33*	6.74	6.3333E-001		6.5724E-001
		785.37	1.11	4.7655E+000		1.1388E-001
		1620.74	1.51	3.3870E+000		-1.1642E+000
		1806.00	0.09	5.1352E+001		1.5516E+000
+	Pb-212	74.81*	10.40	7.1440E-001	8.35E-002	1.0547E+000
		77.11*	17.50	3.8523E-001		9.5508E-001
		87.30*	7.81	6.4557E-001		5.0307E-001
		115.18	0.59	8.4338E+000		5.2506E+000
		238.63*	43.30	8.3456E-002		9.1949E-001
		300.09*	3.28	1.2873E+000		8.9862E-001
	Bi-214	76.86	0.43	2.2938E+001	1.62E-001	1.2655E+000
		89.81	0.24	2.5961E+001		-2.6066E+000
		386.77	0.30	1.2992E+001		3.0706E+000
		454.77	0.29	1.3303E+001		-3.6568E+000
		609.31	45.49	1.6187E-001		4.8884E-001
		665.45	1.53	3.0967E+000		-7.6525E-001
		703.11	0.48	9.0481E+000		1.2565E+000
		719.86	0.39	1.1319E+001		-6.6901E-001
		768.36	4.89	1.0141E+000		-7.8023E-002
		786.10	0.31	1.3931E+001		1.3755E+000
		806.17	1.26	3.3946E+000		-1.3414E-001
		934.06	3.10	1.5609E+000		1.4203E+000
		964.08	0.36	2.1391E+001		-1.2942E+000
		1051.96	0.31	1.4851E+001		-9.6439E+000
		1120.29	14.91	4.6722E-001		5.4505E-001

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
	Bi-214	1133.66	0.25	2.0858E+001	1.62E-001	4.3864E+000
		1155.19	1.63	3.7115E+000		3.6445E+000
		1207.68	0.45	1.2020E+001		-1.7860E+000
		1238.11	5.79	1.1887E+000		9.1420E-001
		1280.96	1.43	3.9280E+000		9.9504E-001
		1377.67	4.00	1.1835E+000		1.8489E-001
		1385.31	0.76	5.7553E+000		-1.8443E-001
		1401.50	1.27	4.0433E+000		1.1807E+000
		1407.98	2.15	2.3349E+000		-4.3112E-002
		1509.23	2.11	2.2720E+000		6.9710E-001
		1538.50	0.38	1.1061E+001		7.3503E+000
		1543.32	0.20	1.9905E+001		-7.3252E+000
		1583.22	0.69	6.8666E+000		-3.8272E+000
		1594.73	0.25	2.0625E+001		1.5271E+000
		1599.31	0.23	1.7977E+001		3.3791E-001
		1661.28	1.15	3.4548E+000		1.3763E+000
		1683.99	0.22	1.7736E+001		-3.2048E+000
		1729.59	2.92	1.3536E+000		3.3533E-002
		1764.49	15.40	4.4766E-001		3.8535E-001
		1847.42	2.11	1.8457E+000		6.6697E-001
		1873.16	0.22	1.5407E+001		3.0301E+000
>		2118.55	1.14	0.0000E+000		0.0000E+000
>		2204.21	5.08	0.0000E+000		0.0000E+000
+	Pb-214	53.28	1.20	2.7901E+001	1.03E-001	4.1126E+000
		74.81*	6.44	9.2209E-001		1.3613E+000
		77.11*	10.80	4.9891E-001		1.2369E+000
		87.30*	4.84	8.3259E-001		6.4881E-001
		242.00*	7.43	3.4289E-001		8.4878E-001
		258.87	0.52	7.5567E+000		2.2612E+000
		274.80	0.47	8.7273E+000		-1.0190E+001
		295.22*	19.30	1.6641E-001		4.5256E-001
		351.93*	37.60	1.0287E-001		4.8033E-001
		462.00*	0.22	1.3712E+001		1.5582E+001
		533.66	0.19	2.1113E+001		1.1507E+001
		785.96	1.07	4.0336E+000		3.9828E-001
		839.04	0.59	8.4074E+000		5.9744E+000
+	Ra-224	81.07	0.13	6.1780E+001	7.77E-001	-4.7214E+001
		83.78	0.22	3.5348E+001		5.7172E+000
		240.99*	4.10	7.7747E-001		1.9245E+000
+	Ra-226	81.07	0.20	3.2835E+001	1.06E+000	-2.5094E+001
		83.78	0.33	1.8691E+001		3.0231E+000
		94.90	0.15	3.5647E+001		3.1397E+001
		186.21*	3.59	1.0636E+000		8.5099E-001
+	Ac-228	99.50	1.26	4.2732E+000	1.93E-001	-7.8788E-001
		129.07	2.50	2.1300E+000		6.4472E-001
		209.25*	3.97	1.1145E+000		7.1086E-001
		270.24	3.55	1.4842E+000		1.4771E-001
		328.00*	3.04	1.0896E+000		9.3139E-001
		338.32*	11.40	4.9336E-001		7.5670E-001
		409.46	2.02	2.4900E+000		1.7090E+000

	Nuclide Name	Energy (keV)	Yield (%)	Line MDA (pCi/GWET)	Nuclide MDA (pCi/GWET)	Activity (pCi/GWET)
+	Ac-228	463.00*	4.45	8.5190E-001	1.93E-001	9.6810E-001
		755.31	1.03	5.5861E+000		1.0071E+000
		772.29	1.52	4.0061E+000		5.1730E+000
		794.94*	4.31	8.1828E-001		9.1794E-001
		835.70	1.70	3.5583E+000		1.5247E+000
		911.20*	26.20	1.9311E-001		9.3114E-001
		964.79*	4.99	7.2212E-001		8.9052E-001
		968.96*	15.90	2.1209E-001		1.0136E+000
		1588.20*	3.06	4.7845E-001		1.2769E+000
		1630.62	1.52	3.6480E+000		-4.5018E-001
	Th-228	84.37	1.26	6.3015E+000	6.30E+000	2.1915E+000
		131.61	0.13	4.0771E+001		1.1549E+001
		166.41	0.10	4.7148E+001		3.9371E+000
		215.98	0.25	1.9758E+001		-7.6155E+000
	Pa-234m	258.23	0.07	5.3378E+001	5.71E+000	6.9428E+000
		742.81	0.09	4.5190E+001		2.3027E+001
		766.36	0.32	1.5827E+001		9.8553E+000
		786.27	0.05	8.1209E+001		3.6246E+001
		1001.03	0.85	5.7097E+000		-3.7804E-001
		1737.77	0.02	1.6397E+002		-9.4153E+001
	Th-234	63.30	3.75	3.7310E+000	1.37E+000	5.8569E-001
		92.59	4.33	1.3725E+000		1.2472E+000
		112.81	0.22	1.8588E+001		-2.0561E+000

+ = Nuclide identified during the nuclide identification
* = Energy line found in the spectrum
> = Calculated MDA is zero due to zero counts in the region, or the region is outside the spectrum, or has not been calculated
@ = Half-life too short to be able to perform the decay correction

****
***** N U C L I D E I D E N T I F I C A T I O N R E P O R T *****
****

Sample Title: NFB-WAREHOUSE-BAG NO.17
Nuclide Library Used: C:\GENIE2K\CAMFILES\ERT_LIBRARY_LMDA.NLB

..... IDENTIFIED NUCLIDES .....

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
K-40	0.975	1460.82*		10.55	8.73675E+000	3.57120E-001
Cs-137	0.977	32.06	@	5.54		
		661.66*		84.99	2.58105E-002	7.52629E-003
Eu-152m	0.997	89.85*		69.90	3.21671E-002	7.74835E-003
Tl-208	0.840	72.80	@	2.02		
		74.97*	@	3.41	3.21668E+000	3.54876E-001
		84.90	@	1.51		
		277.36		6.31		
		510.77*	@	22.60	2.03641E-001	6.38119E-002
		583.19*		84.50	2.44694E-001	1.88813E-002
		763.13	@	1.81		
		860.56*		12.42	2.44037E-001	6.46259E-002
Bi-211	0.911	351.03*		13.00	1.41651E+000	1.00241E-001
Bi-212	0.567	39.86	@	1.06		
		727.33*		6.74	6.57241E-001	1.52453E-001
		785.37		1.11		
		1620.74		1.51		
		1806.00	@	0.09		
Pb-212	0.985	74.81*		10.40	1.05470E+000	1.20270E-001
		77.11*		17.50	9.55081E-001	8.19511E-002
		87.30*		7.81	5.03074E-001	9.75384E-002
		115.18	@	0.59		
		238.63*		43.30	9.19489E-001	4.15408E-002
		300.09*		3.28	8.98619E-001	2.89320E-001
Pb-214	0.943	53.28	@	1.20		
		74.81*		6.44	1.36132E+000	1.56608E-001
		77.11*		10.80	1.23691E+000	1.10064E-001
		87.30*		4.84	6.48815E-001	1.26393E-001
		242.00*		7.43	8.48776E-001	7.25361E-002
		258.87	@	0.52		
		274.80	@	0.47		
		295.22*		19.30	4.52558E-001	4.58850E-002
		351.93*		37.60	4.80325E-001	3.36483E-002
		462.00*	@	0.22	1.55821E+001	3.35931E+000
		533.66	@	0.19		
		785.96	@	1.07		
		839.04	@	0.59		
Ra-224	0.813	81.07	@	0.13		
		83.78	@	0.22		
		240.99*		4.10	1.92449E+000	1.63671E-001
Ra-226	0.756	81.07	@	0.20		

Nuclide Name	Id Confidence	Energy (keV)		Yield (%)	Activity (pCi/GWET)	Activity Uncertainty
Ra-226	0.756	83.78	@	0.33		
		94.90	@	0.15		
		186.21*		3.59	8.50994E-001	2.38116E-001
Ac-228	0.697	99.50	@	1.26		
		129.07	@	2.50		
		209.25*		3.97	7.10860E-001	2.48210E-001
		270.24		3.55		
		328.00*		3.04	9.31393E-001	2.54795E-001
		338.32*		11.40	7.56696E-001	1.21002E-001
		409.46	@	2.02		
		463.00*		4.45	9.68098E-001	2.11499E-001
		755.31	@	1.03		
		772.29	@	1.52		
		794.94*		4.31	9.17935E-001	2.06229E-001
		835.70	@	1.70		
		911.20*		26.20	9.31144E-001	7.26180E-002
		964.79*		4.99	8.90516E-001	1.46376E-001
		968.96*		15.90	1.01364E+000	8.35125E-002
		1588.20*		3.06	1.27686E+000	2.31171E-001
		1630.62	@	1.52		

* = Energy line found in the spectrum.
@ = Energy line not used for Weighted Mean Activity
Energy Tolerance : 1.000 keV
Nuclide confidence index threshold = 0.45
Errors quoted at 1.000 sigma

****
***** I N T E R F E R E N C E C O R R E C T E D R E P O R T *****
****

	Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/GWET)	Wt mean Activity Uncertainty
	K-40		0.975	8.736748E+000	3.571205E-001
X	Cd-109		0.888		
	Cs-137	@	0.977	2.581050E-002	7.526292E-003
	Eu-152m		0.997	3.216712E-002	7.748354E-003
	Tl-208	@	0.840	2.440945E-001	1.800565E-002
	Bi-211		0.911	4.553044E-001	1.542559E-001
	Bi-212	@	0.567	6.572409E-001	1.524525E-001
	Pb-212	@	0.985	7.918494E-001	3.409971E-002
	Pb-214	@	0.943	3.259352E-001	4.037219E-002
	Ra-224	@	0.813	1.185474E+000	1.860557E-001
	Ra-226	@	0.756	8.509936E-001	2.381163E-001
	Ac-228	@	0.697	9.354135E-001	4.042872E-002

? = Nuclide is part of an undetermined solution
X = Nuclide rejected by the interference analysis
@ = Nuclide contains energy lines not used in Weighted Mean Activity

Errors quoted at 1.000 sigma

********** U N I D E N T I F I E D P E A K S **********

Peak Locate Performed on: 7/21/2017 1:34:34 PM
Peak Locate From Channel: 100
Peak Locate To Channel: 8192

	Peak No.	Energy (keV)	Peak Size in Counts per Second	Peak CPS % Uncertainty	Peak Type	Tol. Nuclide
	17	609.15	6.8773E-002	5.66	Tol.	Bi-214
	18	644.58	1.8766E-003	69.13		
M	23	870.65	1.4909E-003	46.84	Sum	
m	24	873.99	1.2590E-003	43.77	Tol.	Eu-154
	28	1120.29	1.7048E-002	14.44	Sum	
	29	1276.46	1.1989E-003	98.72		
	30	1378.50	4.9164E-003	21.70	Sum	
	33	1765.53	1.3488E-002	12.61		

M = First peak in a multiplet region
m = Other peak in a multiplet region
F = Fitted singlet

Errors quoted at 1.000 sigma